UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,589	07/03/2001	Doron Ben-Yehezkel	0008450-0004	2868

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EXAMINER
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ART UNIT	PAPER NUMBER
2157	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>03 July 2001</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-60</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-60</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some *   c)☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

1. **DETAILED ACTION**

This action is responsive to the application filed on July 3, 2001. Claims 1-60 are
pending. Claims 1-60 represent Scalable Server Clustering.

2. *Claim Rejections - 35 USC § 102*

> (e) the invention was described in a patent granted on an application for patent
> by another filed in the United States before the invention thereof by the applicant
> for patent, or on an international application by another who has fulfilled the
> requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before
> the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3.   Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by

Goldszmidt et al. (referred to hereafter as Gold) U.S. 6,195,680.

Gold teaches the invention as claimed including client-based dynamic switching
of streaming servers for fault-tolerance and load balancing (abstract).

As to claim 1, Gold teaches a method for client request servicing comprising:

assigning a primary server from a plurality of servers to a client (column 7, lines 25-26, Gold discloses the client agent 1.8 is assigned a primary streaming server 1.2);

routing a request from said client to said primary server (abstract, Gold discloses The client requests a multimedia stream through a control server or gateway which routes requests to the multimedia servers); and

servicing said request with said primary server (abstract, Gold discloses the client receives the stream directly from a selected (primary) server).

As to claim 2, Gold teaches the method of claim 1 wherein said step of assigning comprising:

ordering said plurality of servers (abstract, Gold discloses servers are grouped into two or more sets); and

selecting a next server (abstract, God discloses switches to a secondary server).

As to claim 3, Gold teaches the method of claim 1 wherein said step of assigning comprising:

Determining a first server (abstract, Gold discloses the client receives the stream directly from a selected (primary) server);

determining a number of clients said first server is currently serving (column 1, lines 19-21, Gold discloses Clients are directed to one of a multiplicity of servers to obtain the multimedia stream in real-time);

selecting a second server if said number is greater than a threshold for said first server (column 10, lines 63, Gold discloses If the delivery rate falls below a threshold this could be determined to be a network failure (or server congestion) for which the downloaded rules indicate a certain secondary server set preference).

As to claim 4, Gold teaches the method of claim 3 wherein said second server must serve as said primary server (column 19, line 22, Gold discloses designation the secondary server as a new primary server)

As to claim 5, Gold teaches the method of claim 3 wherein said step of selecting comprises:

determining a status of said second server (column 3, lines 48-53, Gold discloses the secondary entry characterizes the set containing an alternate server for the client agent. When a client detects a failure or overload, the client sends a switch request to the control server which then selects a server in the secondary set and redirects the client agents of the primary server to the selected alternate server).

As to claim 6, Gold teaches the method of claim 5 wherein said status comprises:

a first number wherein said first number is the number of clients said second server serves as a first primary server (column 19, line 22, Gold discloses designation the secondary server as a new primary server; column 3, lines 29-34, Gold discloses the control server is preferably a scalable server that is capable of handling a request from a large number of incoming client agents and redirecting them to the streaming servers that are providing the multimedia data); and

a second number wherein said second number is a client capacity of said second server (column 17, lines 58-61, Gold discloses the client dynamically switching to and receiving the real-time data stream from a secondary server in the secondary set of servers in response to said detecting step).

As to claim 7, Gold teaches the method of claim 5 wherein said status further comprises: a third number wherein said third number is the number of client said second server serves as an alternate server (column 3, lines 7-11, Gold discloses a receiver (also called a client) automatically detects load imbalances and/or failures (complete or partial) and dynamically switches to an alternate server in order to continue receiving the real-time multimedia stream with minimal disruption).

As to claim 8, Gold teaches the method of claim 5 wherein said step of determining said status comprises: receiving a plurality of status updates from said , plurality of servers (column 7, lines 37-39, Gold discloses The selected secondary streaming server now becomes the primary streaming server for the client agent 1.8, and the set 1.5 that contains streaming servers using even-numbered ports becomes the set for the secondary server. The control server 1.1 preferably communicates the updated identifiers (1.94, 1.96) to the client 1.8. This feature allows the client to dynamically switch back and forth between the two sets).

As to claim 9, Gold teaches the method of claim 1 further comprising: assigning an alternate server from said plurality of servers (column 3, lines 48-53, Gold discloses...when a client detects a failure or overload, the client sends a switch request to the control server which then selects a server in the secondary set and redirects the client agents of the primary server to the selected alternate server).

As to claim 10, Gold teaches the method of claim 9 wherein said step of assigning said alternate server is performed by said primary server based on a status of said alternate server (column 8, lines 46-54, Gold discloses The control server 2.1 then assigns and redirects the Client Agent's request to one of the sets (2.6, 2.7) of streaming servers and also to a particular (primary) server within a set, based on some load-balancing heuristics. For example, the control server may redirect the request to a streaming server based on the current number of connection streams to each streaming server. The control server 2.1 also assigns an alternate server to the requesting Client 2.5).

As to claim 11, Gold teaches the method of claim 9 further comprising: reassigning said alternate server as a new primary server and selecting a new alternate server if said primary server becomes unavailable and said client makes a request (column 14, lines 57, Gold discloses the alternate server becomes the new

primary server and the original server 320' (or another) streaming server is selected as the new alternate server for the client 350').

Claims 21-31 and 41-51 do not teach or define any new limitations above claims 1-11, and therefore are rejected for similar reasons.

4.   *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gold U.S. 6,195,680 in view of Chu et al. U.S. 6,006,331.

Gold teaches the invention substantially as claimed including client-based dynamic switching of streaming servers for fault-tolerance and load balancing (abstract).

As to claim 12, Gold teaches the method of claim 11.

Gold fails to teach removing said client from a list of clients served by said primary server.

However, Chu teaches recovery of online session for dynamic directory services. Chu teaches removing said client from a list of clients served by said primary server (column 12, lines 58-59, Chu discloses for the server to remove the client's entry from the directory).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Chu to provide removing said client from a list of

clients served by said primary server. One would be motivated to do so to allow the client to relog onto the server (see abstract).

As to claim 13 Gold teaches the method of claim 12.

Gold fails to teach said list is maintained in said primary server.

However, Chu teaches said list is maintained in said primary server (abstract, Chu discloses a server maintains a directory service of a plurality of clients).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Chu to provide said list is maintained in said primary server. One would be motivated to do so to allow a group policy.

As to claim 14, Gold teaches the method of claim 13.

Gold fails to teach said step of removing is performed when said primary server becomes available.

However, Chu teaches said step of removing is performed when said primary server becomes available (column 12, lines 59-61, Chu discloses the client may have sent one or more refresh requests that went unanswered because the network was down).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Chu to provide said step of removing is performed when said primary server becomes available. One would be motivated to do so to allow the client to relog automatically onto the server using the cached information, without user intervention (see abstract).

Claims 32-34 and 52-54 do not teach or define any new limitations above claims 12-14, and therefore are rejected for similar reasons.

6. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gold U.S. 6,195,680 in view of Matsumoto et al (referred to hereafter as Mat) U.S. 6,757,726.

Gold teaches the invention substantially as claimed including client-based dynamic switching of streaming servers for fault-tolerance and load balancing (abstract).

As to claim 15, Gold teaches the method of claim 1.

Gold fails to teach maintaining a first cache of data items on said client.

However, Mat teaches cache server having a cache-data-concerning data retained by other cache servers. Mat teaches maintaining a first cache of data items on said client (column 1, lines 42-44, Mat discloses the cache server 101 sends data of the web page sent from the Internet 100 to the client PC 102d as well as temporarily caches the data of the Web page).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Mat to provide maintaining a first cache of data items on said client. One would be motivated to do so to allow quick retrieval of data of the Web page as needed.

Gold fails to teach mirroring said first cache in a second cache on said primary server.

However, Mat teaches mirroring said first cache in a second cache on said primary server (figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Mat to provide mirroring said first cache in a second cache on said primary server. One would be motivated to do so to allow the same cache data among the cache servers 103a to 103c (column 1, lines 61-62).

As to claim 16, Gold teaches the method of claim 15.

Gold fails to teach mirroring said first cache in a third cache on an alternate server.

However, Mat teaches mirroring said first cache in a third cache on an alternate server (figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Mat to provide mirroring said first ca he in a third cache on an alternate server. One would be motivated to do so to allow the same cache data among the cache servers 103a to 103c (column 1, lines 61-62).

As to claim 17, Gold teaches the method of claim 15 further comprising:

retrieving a first data item from a data source wherein said step of retrieving is accomplished by said primary server (column 12, lines 29-31, Gold discloses a mechanism which enables a client agent of
streaming applications to continue receiving data from an alternate server with minimal disruption, for example if the primary server fails).

Gold fails to teach instructing said client to use a second data item wherein said second data item is in said first cache if said first data item is equal to a copy of said second data item in said second cache.

However instructing said client to use a second data item wherein said second data item is in said first cache if said first data item is equal to a copy of said second data item in said second cache (column 1, lines 59-62, Mat discloses the cache servers 103a to 103c perform a process referred to as a mirroring that synchronizes cache data among the cache servers 103a to 103c so as to have the same cache data).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Mat to provide instructing said client to use a second data item wherein said second data item is in said first cache if said first data item is equal to a copy of said second data item in said second cache. One would be motivated to do so to allow retaining data regarding the data-inquiry request (see abstract).

Claims 35-37 and 55-57 do not teach or define any new limitations above claims 15-17, and therefore are rejected for similar reasons.

7.   Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gold U.S. 6,195,680 in view of Mat U.S. 6,757,726, and further in view of Badurian U.S. 6,543,026.

Gold teaches the invention substantially as claimed including client-based dynamic switching of streaming servers for fault-tolerance and load balancing (abstract).

As to claim 18, Gold teaches the method of claim 15.

Gold fails to teach calculating a first value from a first data item using a correction method wherein said first data item is in said first cache.

However, Badurian teaches forwarding error correction apparatus and methods. Badurian teaches calculating a first value from a first data item using a correction method wherein said first data item is in said first cache (abstract, Badurian discloses a forward error correction method includes: (a) computing syndromes values; column 3, lines 47-48, Badurian discloses error corrector 32 computes error locations and values and passes this information to memory interface 30; figure 2B, step 44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Badurian to provide calculating a first value from a first data item using a correction method wherein said first data item is in said first cache. One would be motivated to do so to allow flow of data into the first and second memory locations and the first, second and third register banks (abstract).

Gold fails to teach Transmit said first value from a first data item using a correction method wherein said first data item is in said first cache.

However, Badurian teaches Transmit said first value from a first data item using a correction method wherein said first data item is in said first cache (figure 2B, step 44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Badurian to provide Transmit said first value from a first data item using a correction method wherein said first data item is in said first cache. One would be motivated to do so to allow flow of data into the first and second memory locations and the first, second and third register banks (abstract).

Gold fails to teach retrieving a second data item.

However, Badurian teaches retrieving a second data item (column 3, lines 50-51, Badurian discloses memory interface 30 originally retrieved the erroneous data).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Badurian to provide retrieving a second data item. One would be motivated to do so to allow memory interface 30 checks the data for error (column 3, lines 51-52).

Gold fails to teach calculating a second value from said second data item using said correction method.

However, Badurian teaches calculating a second value from said second data item using said correction method (abstract, Badurian discloses a forward error correction method includes: (a) computing syndromes values).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Badurian to provide calculating a second value from said second data item using said correction method. One would be motivated to do so to allow flow of data into the first and second memory locations and the first, second and third register banks (abstract).

Gold fails to teach instructing said client to use said first data item if said second value is equal to said first value.

However, Badurian teaches instructing said client to use said first data item if said second value is equal to said first value (column 9, lines 6-10, Badurian discloses after the 254.sup.th cycle, firmware identified a data block as uncorrectable if: (1) the

bit flag is set to high; or (2) value of root counter 144 does not equal v+s, where v is the power of .sigma."(x) and s is the number of erasures).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Badurian to provide instructing said client to use said first data item if said second value is equal to said first value. One would be motivated to do so to allow evaluating the computed Chien polynomial based upon the error location values to obtain error and erasure values (abstract).

As to claim 19, Gold teaches the method of claim 18.

Gold fails to teach said step of instructing comprises:

storing said second data item in said second cache.

However, Badurian teaches storing said second data item in said second cache (column 3, line 67, Badurian discloses a second ECC block is stored in buffer 2 (step 45)).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Badurian to provide storing said second data item in said second cache. One would be motivated to do so to allow the calculated syndromes to be passed to error corrector 32 (column 4, lines 3-4).

As to claim 20, Gold teaches the method of claim 18.

Gold fails to teach said correction method is a cyclic redundancy code.

However, Badurian teaches said correction method is a cyclic redundancy code (column 3, lines 17-18, Badurian discloses the data preferably is encoded with a RS cyclic redundancy code).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gold in view of Badurian to provide said correction method is a cyclic redundancy code. One would be motivated to do so to allow a high throughput.

Claims 38-40 and 58-60 do not teach or define any new limitations above claims 18-20, and therefore are rejected for similar reasons.

8.   *Conclusion*

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to El Hadji M Sall whose telephone number is 703-306-

4153. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ario Etienne can be reached on 703 308-7562. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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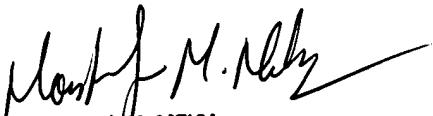
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